

Name: \_\_\_\_\_ TP: \_\_\_\_\_

**Directions:** After reading through the syllabus, answer the following questions in complete sentences.

1) When are *your* math teacher's office hours? What do you need to do if you need to see your teacher outside of class? *(Are there formal office hours?)*

2) In your own words, describe the homework grading policy. When will you be issued a LaSalle?  
*(Bottom of the 1<sup>st</sup> page!)*

3) What are the two big goals for Geometry this year?  
*(Middle of the 1<sup>st</sup> page!)*

4) Write down at least one Geometry concept that you will learn by the end of the year.  
*(Page before signature page!)*

5) What are the five categories that will determine your grade in Geometry? Which one will have the most effect on your grade? *(Bottom of the 1<sup>st</sup> page)*

*Biggest Effect on Grade:*

- 1)
- 2)
- 3)
- 4)
- 5)

6) What items do you need to bring to class every day? What is the consequence if you do not bring them?  
*(Look @ chart under organization/classwork/participation)*

7) Where can you look for work when you are absent?

8) What does my teacher expect of me in geometry this year?  
*(Look @ student expectations on page 2)*

Name:	Favorite Colors:	Birth date:	Class Period:
Who do you live with at home? List their names, ages (if under 25), and their relationship to you.			
If your Geometry teacher needs to contact your parent(s)/guardian(s), she should ask for... _____ at this phone number: _____.			

**Now for some information about you! (Don't leave any blank spaces!)**

What organizations / teams / enrichments do you belong to?
My favorite things to do are...
3 songs I want to hear in class are...
I know a teacher cares about me when....
One thing I can't stand is...
I'm better than anyone when it comes to...
Someone I admire is...
My dream is to...
Two words that describe me best are...
If I could change one thing about myself...
I think school is...
Nobody knows I'm...
Math is...
One goal I have this year is...
My favorite classroom activities are...
My favorite subject in school is...
The best way to motivate me in the classroom is to...
One personal thing I want to know about my Geometry teacher is...
One personal thing my Geometry teacher should know about me is...
One thing I need or expect from my Geometry teacher is...

**Artifact Team Builder (ongoing throughout the week).**

- Bring **FIVE** objects/pictures/symbols that represent something that is important to you by *tomorrow, Tuesday, August 28*. Bring these items to class if you are scheduled to present, otherwise, leave these belongings in your locker.
  - For example, if family is extremely important to you, bring a picture of a family barbeque. Or, if you are really into basketball, bring in a basketball.
- You and your classmates will share the significance of the five objects throughout the rest of the week on your scheduled presentation day.
- You will receive LaSalle if you do not bring your artifacts with you to class on your scheduled presentation day.

**PUSH IT TO THE LIMIT.**

# Form A

HW#1: Points, Lines, and Planes

Geometry

Due Date: Wednesday, August 28<sup>th</sup>, 2013

Name: \_\_\_\_\_ TP: \_\_\_\_\_

Failure to show work and write in complete sentences will result in a LaSalle.

1. Define "collinear" and *sketch an example* of collinear points.

*collinear / "co"=together*

2. Define "coplanar" and *sketch an example* of coplanar points.

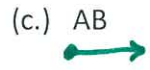
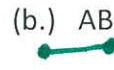
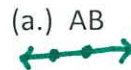
*co plan(e) ar*

Picture:

Picture:

3. What is the *difference* between a ray and a line?

4. Write the necessary notation above "AB" to demonstrate that (a.) is a line, (b.) is a line segment, and (c.) is a ray.



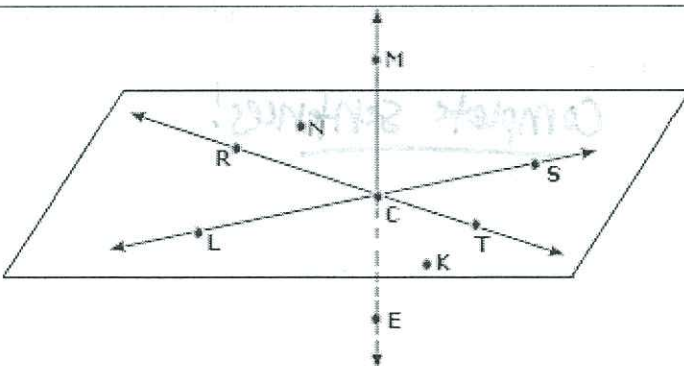
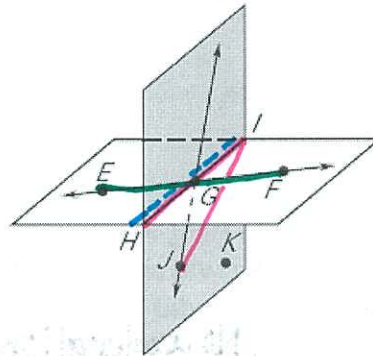
5. Use the diagram to decide whether the given statement is *true* or *false*.

a. Points E, G, and F are collinear. \_\_\_\_\_

b. Points E, G, and F are coplanar. \_\_\_\_\_

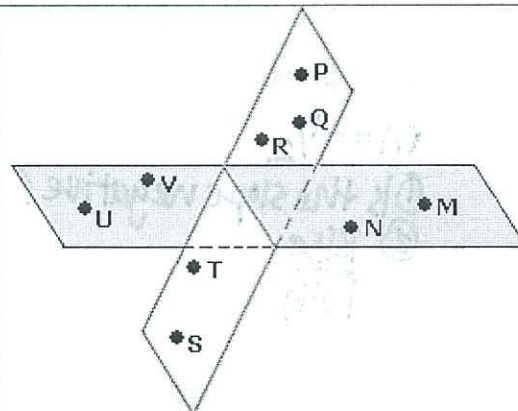
c. Points H, I, and G are collinear. \_\_\_\_\_

d. Points H, I, and J are coplanar. \_\_\_\_\_



6. Name at least 3 sets of 3 points in the figure above that are collinear. *collinear*

- A. L C S  
B. \_\_\_\_\_  
C. \_\_\_\_\_



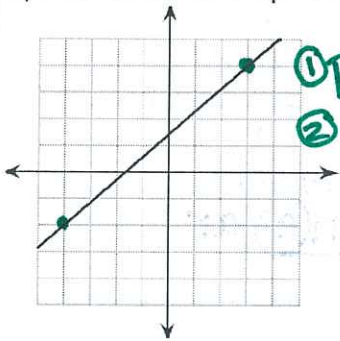
7. Name at least 3 sets of 3 points in the figure above that are coplanar. *coplan(e) ar*

- A. U V M  
B. \_\_\_\_\_  
C. \_\_\_\_\_

PUSH IT TO THE LIMIT.

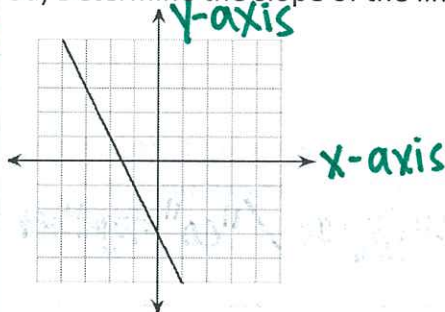


8) Determine the slope of the line below: \_\_\_\_\_



① positive or negative?  
②  $\frac{\text{Rise}}{\text{Run}}$

9a) Determine the slope of the line below: \_\_\_\_\_



b) What is the y-intercept? \_\_\_\_\_

10) Sketch a line with the given slope:

$\nearrow$  No slope; no rise.

a) Zero

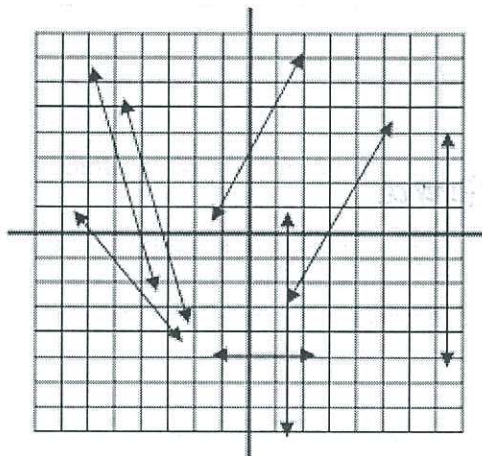
What is this kind of line called: \_\_\_\_\_

$\nearrow$  opposite of zero slope

b) Undefined

What is this kind of line called: \_\_\_\_\_

11) Use the graph below to answer the questions that follow.

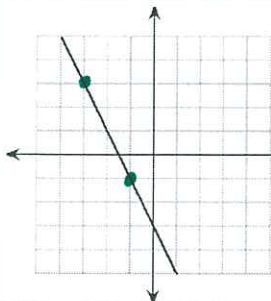


- a) How many lines have a positive slope? \_\_\_\_\_  
b) How many lines have a negative slope? \_\_\_\_\_  
c) How many lines have an undefined slope? \_\_\_\_\_  
d) How many lines have a slope of zero? \_\_\_\_\_

12) Sketch a line in the box to the right to represent the following scenario: Mr. Lawler was sitting in his car stuck in traffic on a highway. He did not accelerate at all for ten minutes.

No acceleration = zero/No slope!

13) **Error Analysis.** Cindy looked at the graph below and stated that the slope was  $-\frac{1}{2}$ . Explain what mistake she made and correct her by providing the accurate slope of the line.



$m = -\frac{1}{2}$   
① Is the slope negative?  
②  $\frac{\text{Rise}}{\text{Run}}$

Complete sentences!

14) **Explain.** In 2 sentences, explain which line has the steepest slope by analyzing the equations of the lines below.

Line a:  $y = 2x - 4$

$m = 2$  What slope is steeper?

Line b:  $y = \frac{1}{3}x + 2$

$m = \frac{1}{3}$

Name: \_\_\_\_\_ TP: \_\_\_\_\_

Failure to show work and write in complete sentences will result in a LaSalle.

1. Measure the following line segments to the nearest tenth of an inch.

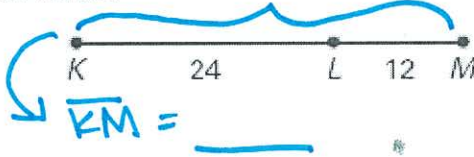


\* cm are smaller than inches  
\* use the ruler in your agenda!

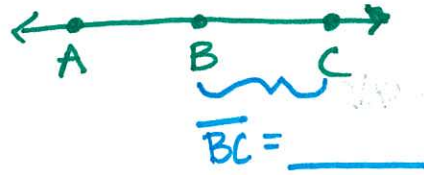
AB: \_\_\_\_\_ centimeters \_\_\_\_\_ inches

CD: \_\_\_\_\_ centimeters \_\_\_\_\_ inches

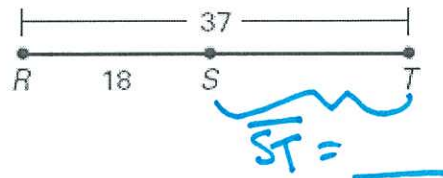
3. Find KM.



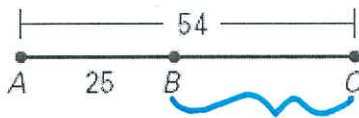
2. On a particular line segment, points A, B, and C are collinear, and B is between A and C. If  $AB = 15$  and  $BC = 9$ , what is the measure of AC?



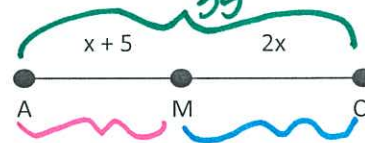
4. Find ST.



5. Find BC.

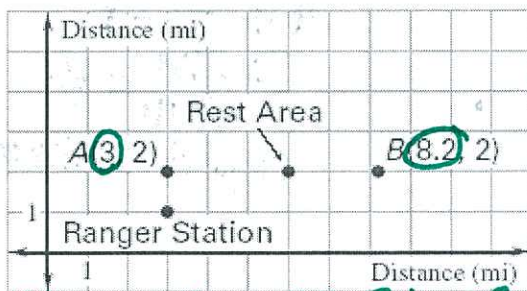


6. If  $AC = 35$ , what is the value of MC?



(substitute)  
 $AM + MC = AC$

7. On the map, AB represents a trail that you are hiking. You start from the beginning of the trail and hike for 90 minutes at a rate of 1.4 miles per hour. How much farther do you need to hike to reach the end of the trail?



- ① What is the distance b/w 3 & 8.2?  
② Change 90 min. to hours. A & B?  
③  $1.4 \text{ mi} (\text{hrs}) = \text{mi}$   
④ How many miles are left?

8. On a separate sheet of graph paper, plot the given points in a coordinate plane. Then state whether the line segments are congruent. (Use graph paper attached)

- a. Plot the points  $A(2, 2)$ ,  $B(4, 2)$ ,  $C(-1, -1)$ ,  $D(-1, 1)$

Are AB and CD congruent? \_\_\_\_\_  
Count the units. ↗

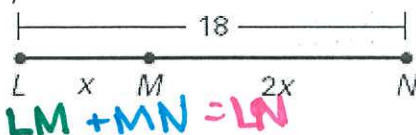
- b. Plot the points  $M(1, -3)$ ,  $N(4, -3)$ ,  $O(3, 4)$ ,  $P(4, 4)$

Are MN and OP congruent? \_\_\_\_\_

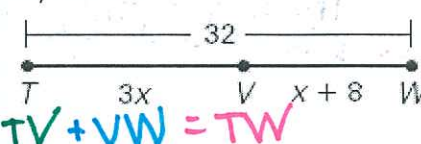
- c. Plot the points  $E(-3, 4)$ ,  $F(-1, 4)$ ,  $G(2, 4)$ ,  $H(-1, 1)$

Are EG and FH congruent? \_\_\_\_\_

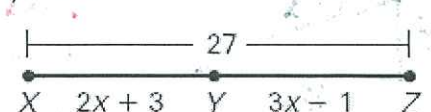
- 9) Find LM.



- 10) Find VW.

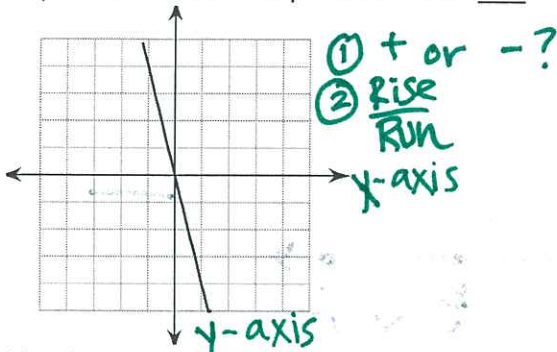


- 11) Find YZ.



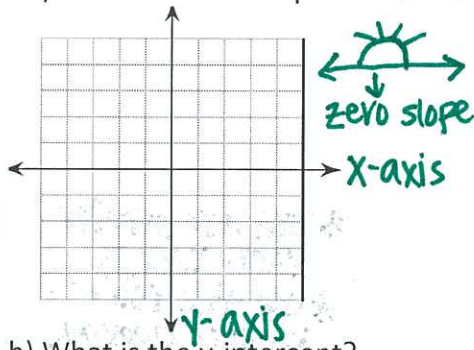


12) Determine the slope of the line: \_\_\_\_\_



b) What is the y-intercept? \_\_\_\_\_

13) Determine the slope of the line: \_\_\_\_\_



b) What is the y-intercept? \_\_\_\_\_

14a) Which line has the smallest positive slope?

↑ 4 flat

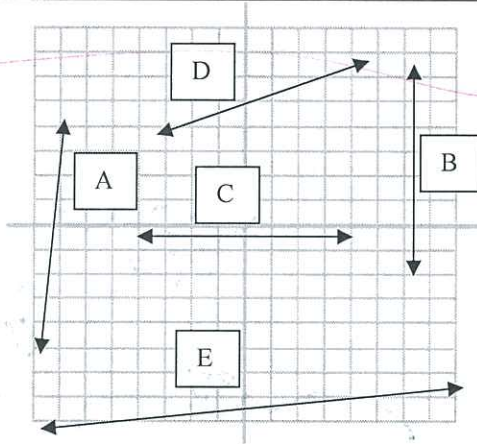
b) Which line has the biggest positive slope?

↑ 4 steep

c) What is the slope of line B?

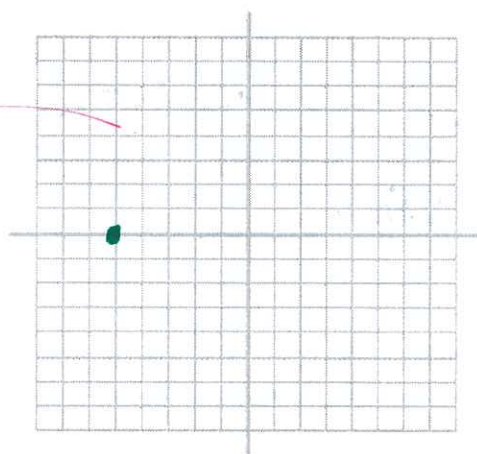
d) What is the slope of the line C?

← 4 horizontal



15) Sketch the graph of a line that crosses through the point  $(-5, 0)$  and has a slope of 2.

$\frac{\text{Rise}}{\text{Run}} = \frac{2}{1}$   
+ or - ?



16) Shirley builds a doll house on her own for an hour. At that time, her mother starts helping her build, and they work together at a rate of twice the speed Shirley was working alone.

Faster = steeper!

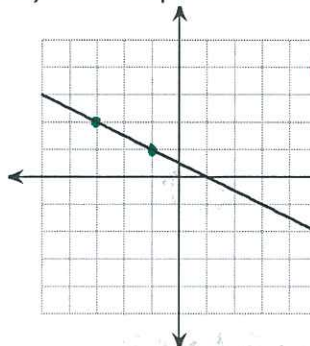
Plot the scenario on the graph below:



\* You should have TWO slopes!

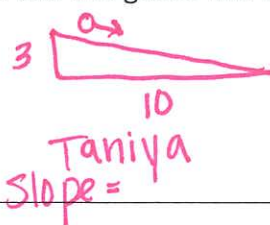
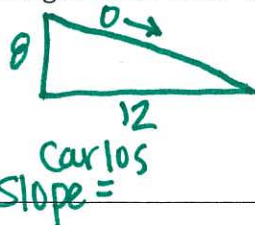
17) Error Analysis. Detteller determined that the slope of the line below is  $\frac{1}{2}$ . Is she correct? Why or why not – explain & correct.

$m = \frac{1}{2}$



① + or - ?  
②  $\frac{\text{Rise}}{\text{Run}} = \frac{1}{2}$   
Complete sentence!

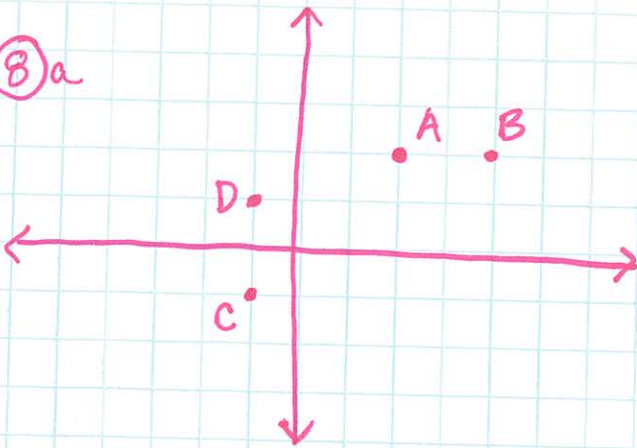
18) Explain. Carlos lets a tennis ball roll down a ramp that has a height of 8 feet and a length of 12 feet. Taniya lets a tennis ball of the same dimensions roll down another ramp that has a height of 3 feet and a length of 10 feet. Whose ball will get to the end of the ramp first? Why? Be specific.



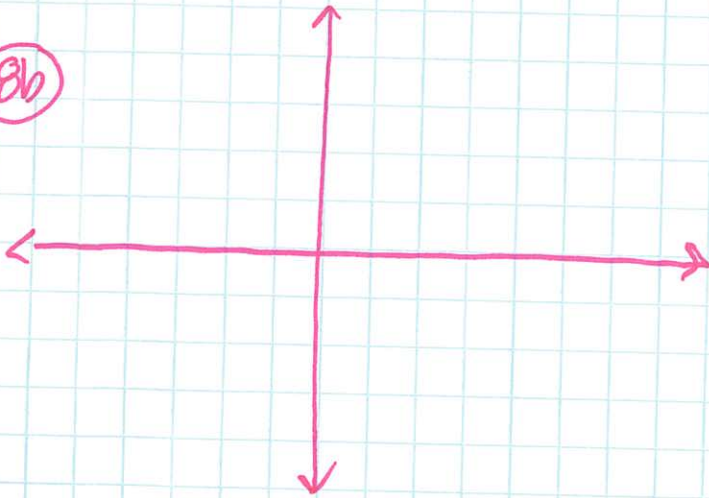
The steeper the slope, the faster the ball gets to the ground!

PUSH IT TO THE LIMIT.

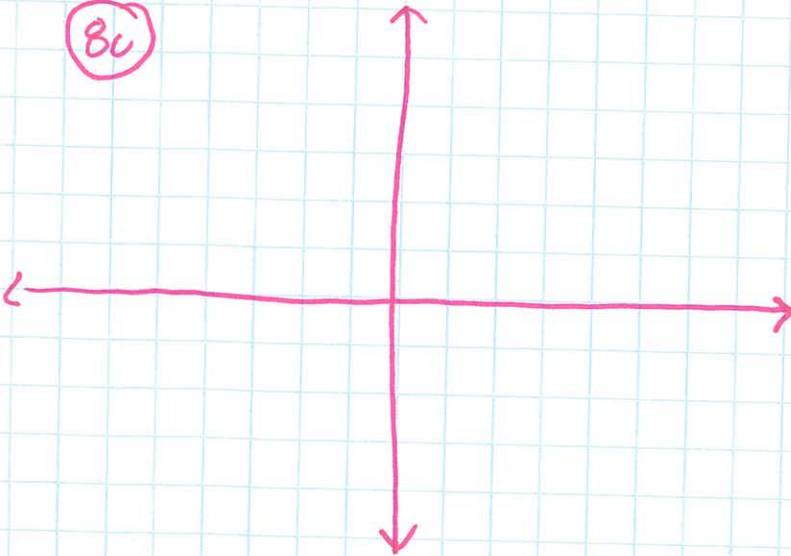
8a

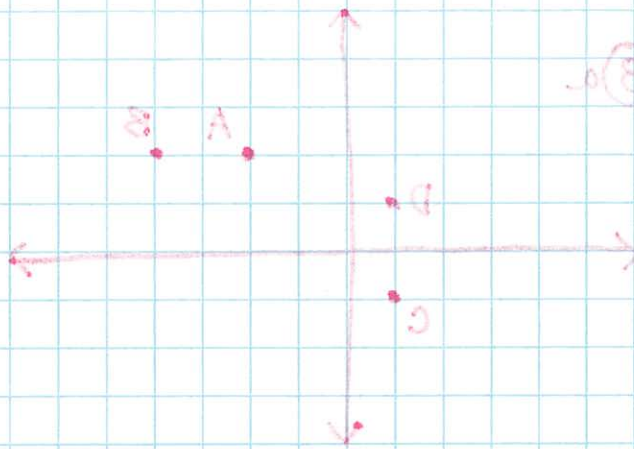


8b

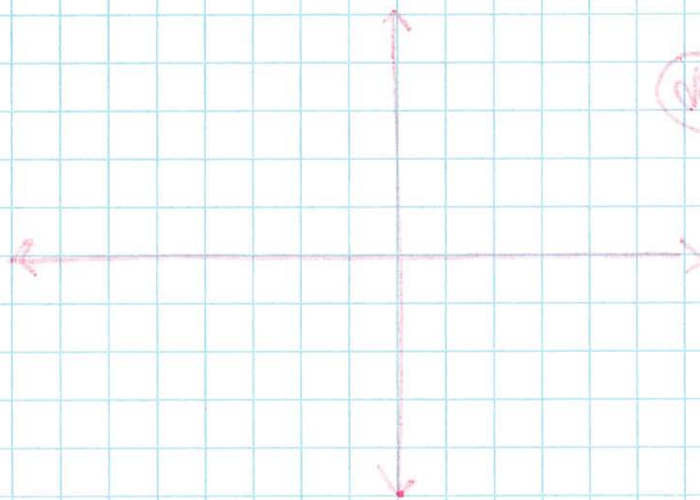


8c

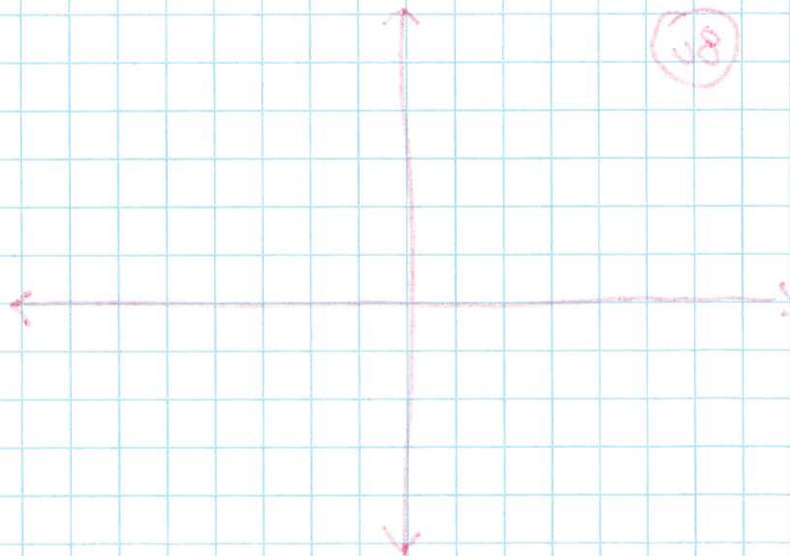




⑧



⑧



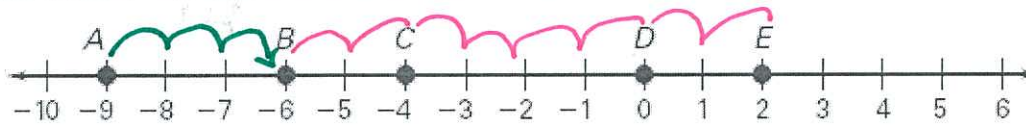
⑧



Name: \_\_\_\_\_ TP: \_\_\_\_\_

Failure to show work and write in complete sentences will result in a LaSalle.

Use the number line below to answer questions 1 – 4.



1. What is the distance, in coordinate units, between points A and B?

$$|A - B|$$

2. What is the distance, in coordinate units, between points B and E?

$$|B - E|$$

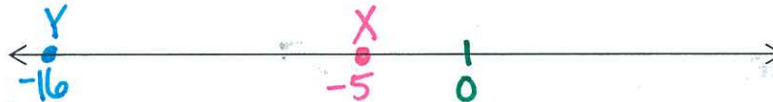
3. How much longer is AD than BE?

$$AD - BE$$

4. How much longer is CD than DE? (look @ #3)

Use the description of a number line below to answer questions 5 – 6. Sketch the number line below before answering the questions.

On a number line, point W is located at 3, X is located at -5, Y is located at -16, and Z is located at 11.



\* Plot W & Z still \*

5. What is the distance, in coordinate units, between points W and Z?

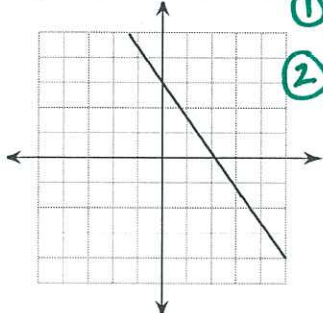
$$|W - Z|$$

6. What is the distance, in coordinate units, between points Y and Z? (look @ #5)

7. How much longer is WY than XZ? (look @ #3)

8. How much longer is YZ than WX? (look @ #3)

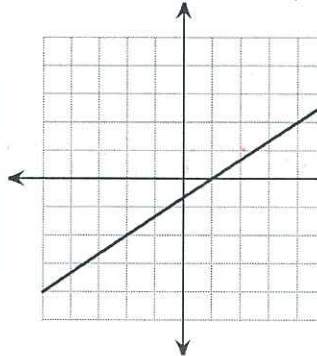
9a) Determine the slope of the line: \_\_\_\_\_



① + or -?  
②  $\frac{\text{Rise}}{\text{Run}}$

b) What is the y-intercept?

10) Determine the slope of the line: \_\_\_\_\_



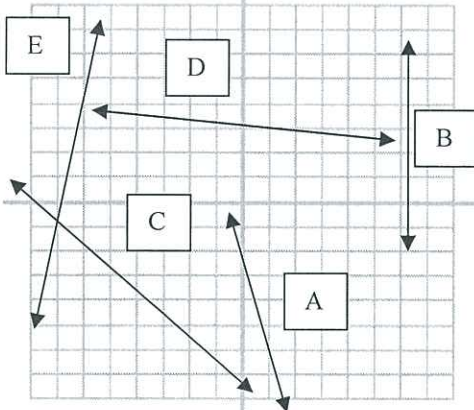
① + or -?  
②  $\frac{\text{Rise}}{\text{Run}}$

11a) Which line has the smallest negative slope?

b) Which line has the biggest negative slope?

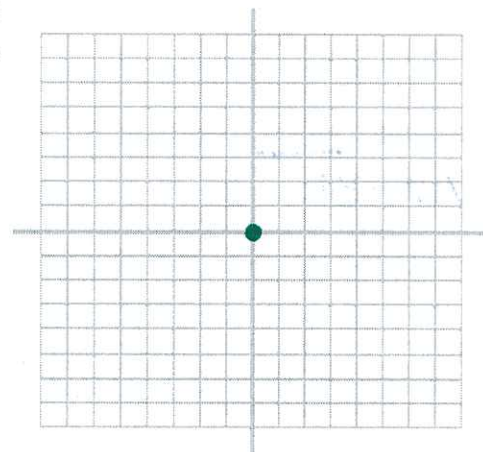
↓ 4 steep

c) What is the slope of line B?



12) Sketch the graph of a line that crosses through the point (0, 0) and has a slope of  $-\frac{1}{3}$ .

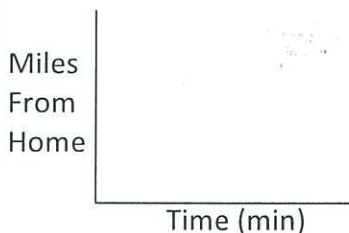
$-\frac{1}{3}$   $\frac{\text{Rise}}{\text{Run}}$



13) You walk from home to school, a distance of 1 mile, at a constant rate in 10 minutes.

Constant = 1 slope

Plot the scenario on the graph below:

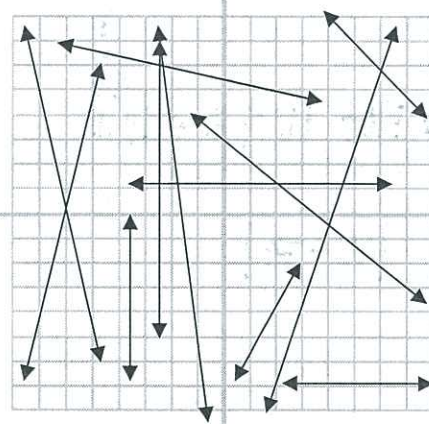


14) How many lines have a positive slope? →

b) How many lines have a negative slope? ↓

c) How many lines have a slope of zero? ✗

d) How many lines have an undefined slope? ✗



15) **Explain.** How do you find the slope of a line given two ordered pairs? Create two ordered pairs, and write out the process with which you would find the slope of the line that connects the two points.

$y_2 - y_1$

→ Fill in!

complete sentences!

Name: \_\_\_\_\_ TP: \_\_\_\_\_

\* Look at the article for help with  
where to find the answers \*

Failure to write in COMPLETE SENTENCES will result in LaSalle.

1) List three statistics from the article that indicate that higher level math is indicative of future success:

- "Students who complete Algebra II in high school more than double their chances of earning a four-year college degree."
- 
- 

2) Summarize your interpretation of the first graph titled "Highest level of math in high school is the strongest predictor of BA attainment, regardless of race, family income or background" (1 – 2 sentences).

3) Why is it important to take higher level math even if you do not plan on attending a 4-year college?

4) Why do college graduates say that Algebra II helped them in college?

5a) What percentage of graduates said they would work harder and apply themselves more if they could go back and do high school all over again?

\_\_\_\_\_

b) Summarize your interpretation of the third graph titled "Majority of graduates would have taken harder courses" (1 – 2 sentences).



6) Quote 1 – 2 sentences that were impactful. Why were they impactful? (What sentences stood out to you?)

1:

2:

7) What can states do to increase the percentage of students taking higher level math courses in high school?

8) What are your *three* key take-aways from this article? In other words, what are the three things that really stuck with you after finishing the article?

- 
- 
- 

9) What do you want to be when you grow up? How does math apply to this job?

10) List at least one job that requires math/problem solving/logic/strategic thinking/architectural design that may interest you. Explain how math relates to this job. *If you cannot think of one off of the top of your head, look it up online!*

**PUSH IT TO THE LIMIT.**

## Do All Students Need Challenging Math in High School?

As states begin to examine their high school mathematics standards and align requirements with the demands of work and college, some concerns are emerging. How much math is really needed? What if students are not planning to go to college? Do all students really need Algebra II?

The research on this is clear, and it may come as a surprise to many adults who did not take higher-level math courses when they went to school. For most students, taking challenging mathematics in high school is the gatekeeper that either opens or shuts the doors to great opportunities.

### Math Is Essential for Success in College

In a pair of landmark federal studies that followed high school students through their postsecondary years, Clifford Adelman found that the highest level of math taken in high school has the most powerful relationship to earning a bachelor's degree. This is true regardless of student ethnicity, family income or parents' education levels. Students who complete Algebra II in high school *more than double* their chances of earning a four-year college degree. Those who do not take challenging math courses are much more likely to end up in remedial courses and are more likely to drop out.

More than one-third of community college students fail placement tests and need to be remediated in math. And unfortunately, two-thirds of students who take remedial math courses will drop out without earning their degree.

### Well-Paying Jobs Require Strong Math Skills, Too

It is not only the college bound who need more math. Increasingly, well-paying jobs that pay a living wage and allow for career advancement require strong mathematics, problem-solving and reasoning skills as well.

Due to advancements in technology, manufacturing companies need employees with strong math skills to operate the machinery on the factory floor. Eastman Chemical in Texas has an established company-run Operator Apprenticeship Program to train new machine operators. Apprentices are evaluated on their ability to perform tasks that require solving multiple-step math problems and presenting solutions in the appropriate unit of measure or dimension. In 2000, there were 1.6 million jobs for machine operators, paying median hourly wages from \$10.40 to \$16.07.

Those in the construction trade also need higher math skills. According to the Associated General Contractors of America, electricians, pipe fitters, sheet metal workers, draftsmen and surveyors all need algebra, geometry, trigonometry and physics to be successful on the job.

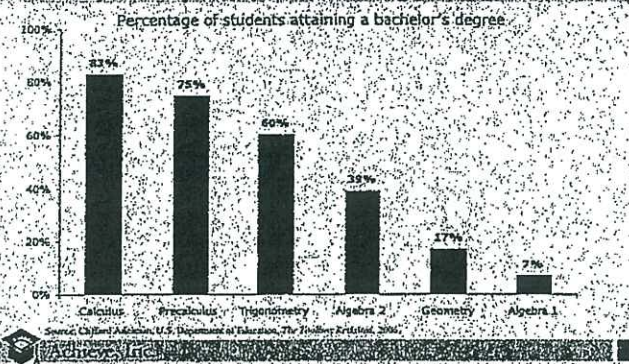
### Two-Year Colleges Also Require Rigorous Math

Students planning on attending community college also need strong Algebra II skills. Although most two-year colleges allow any student with a high school diploma to attend, students cannot get into "credit-bearing" courses unless they meet a certain level on a placement test in reading, writing and mathematics.

Most of these math placement tests cover geometry and advanced algebra. And most certificate and degree programs at two-year colleges require at least one credit-bearing math course — so it's hard for students to avoid math in college.

If you think this sounds a lot like the math courses students need for college, you're right. A new study by ACT looked carefully at the skills needed for success in freshmen courses in college and compared them to skills needed for training programs in occupations that offer a salary sufficient to support a family of four. ACT concluded that those jobs require a comparable level of math skills in algebra, geometry, data analysis and statistics as colleges do.

#2  
Highest level of math in high school is the strongest predictor of BA attainment, regardless of race, family income or background



#3



# Do All Students Need Challenging Math in High School?

## Support for math/science requirement

Percentage who say requiring four years of math, biology, chemistry and physics to graduate would encourage high school students to work harder/be better prepared



### Students Want More Challenging Courses

In a national poll of recent high school graduates, more than two-thirds who took Algebra II in high school reported that they were well prepared for the demands they faced in college and the workplace. In contrast, of graduates who took less than Algebra II, only four out of 10 say they were well prepared. The statistics were similar whether graduates went to college or directly to the workplace.

Eighty percent of graduates said they would work harder and apply themselves more if they could go back and do high school all over again — that answer was the same for those who went straight to the workforce and for those who went on to college. More than two-thirds of graduates would like to have taken harder courses in high school knowing what they know now about the demands of the workplace and college. When it comes to math, one-third of college students and half of those who went straight to the workplace would have taken more rigorous high school courses.

### Closing the Expectations Gap

In most states, students can take all of the required mathematics courses and earn a high school diploma without being prepared for success in college or the workplace. Simply put, graduation requirements have not kept pace with the changing world students will enter after high school.

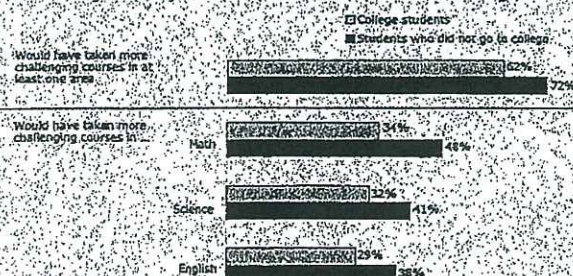
The good news is that some states and communities are raising graduation requirements so that all students take a challenging math curriculum. Arkansas, Indiana, Kentucky, Michigan, Oklahoma and Texas are among the states that have put more rigorous requirements in place. Boston, Chicago, Los Angeles and San Jose also have raised requirements. In each of these states and districts, students will be expected to take three or four years of math through at least Algebra II. This should dramatically improve their preparation for the world they will enter after high school.

### The Bottom Line:

No matter what path they choose after they finish high school, students who have taken more demanding math courses are better prepared.

## Majority of graduates would have taken harder courses

Knowing what they know today about the expectations of college/work



Source: Pew Research Center, "High School Graduates Prepared for College and Work?" released by Achieve, Inc., 2008.